

Report Date: 20 Nov 2014

Summary Report for Individual Task
052-247-1324
Breach Heavy Frame Structural Components for Structural Collapse
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD5 - This product/publication has been reviewed by the product developers in coordination with the Ft Leonard Wood/MSCOE foreign disclosure authority. This product is releasable to students from all requesting foreign countries without restrictions.

Condition: You are a member of an Urban Search and Rescue (US&R) team given a structural collapse incident, personal protective equipment (PPE), heavy frame structural components, technical search devices, rescue power equipment and power saws. This task should not be trained in MOPP 4.

Standard: Breach heavy framed structural components ensuring the opening supports the rescue objectives, structural stability is maintained and the methods used are safe and efficient IAW National Fire Protection Association (NFPA) 1006 and 1670 standards.

Special Condition: None

Safety Risk: Medium

MOPP 4: Never

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: All required references and technical manuals will be provided by the local US&R command.

Notes: None

Performance Steps

1. Conduct a size-up.
 - a. Shut down utilities to the structure(s). (See task 052-247-1313)
 - b. Determine the location of the structural support members.
 - c. Determine the type of tools needed to perform the assignment.
 - d. Determine the PPE requirements.
2. Execute a vertical breach.
 - a. Create an inspection hole toward the upper 1/3 portion and centered in the area to be breached.
Note: An alternate inspection hole can be made in the center of the triangle.



Figure 052-247-1324-1
Inspection Hole

- b. Look for victim(s) in immediate area to determine breach type. (See task 052-247-1319)
Note: When a victim is present you must use a clean breach.
- c. Mark a triangle to outline the area to be cut.
 - (1) Ensure all sides of the triangle are a minimum of 36" in length.
 - (2) Mark the area to breach.
Note: When using the clean stitch verticle breach, the top or apex of the triangle will begin at the inspection hole.



Figure 052-247-1324-2
Marking

d. Perform a clean stitch cut vertical breach.

(1) Drill or core drill several 5/8" diameter holes ensuring clear penetration through the wall.

(a) Work along the marked lines ensuring that the holes are approximately 2" apart to allow for the maximum opening to be created.

Note: This spacing allows for faster failure of the concrete during the breakout phase of the evolution. Care must be taken to prevent the drill bit from binding between the concrete and the rebar that is inside the wall.

(b) Periodically clear the bit to prevent it from seizing up in the wall.



Figure 052-247-1324-3
Stitch Drill

(2) Break out the concrete with a breaking tool.

(a) Use a sledge hammer or electric or pneumatic breakers (jack hammer) to perform the break-out of the concrete.

(b) Work the tool next to and in-between the holes. (These areas are the weakest and easiest to defeat and break out)

Note: Care must be taken not to wedge the breaker between the rebar and the concrete.



Figure 052-247-1324-4
Breaking

(3) Reach in and re-evaluate any potential victim(s) location that could be impacted by the breakout evolution.

(4) Continue to increase the size of the opening by working the breaker along the painted lines until a triangular piece can be lifted out or is broken up into smaller pieces for easy removal.

(5) Cut the rebar prior to entering the opening. Follow the metal cutting steps in step four below for performing a breach of structural steel using torch cutting and burning techniques.

e. Perform a dirty vertical breach.

(1) Breach entire marked area using hammer drills and sledge hammers.

(2) Cut the rebar prior to entering the opening. Follow the metal cutting steps in step four below for performing a breach of structural steel using torch cutting and burning techniques.

3. Execute a horizontal breach.

Note: Rebar may need to be cut before the opening can be utilized for entry, care should be taken when cutting rebar and the exposed ends should be marked and covered to prevent injury to anyone passing through the opening.

a. Create an inspection hole.

b. Look for victim(s) in the immediate area to determine breach type. (See task 052-247-1319)

c. Mark the area to be cut and removed.

Note: Ensure all sides of the square are a minimum of 36" in length.

d. Perform a clean lift-out breach.

Note: The application of water from tool attachments or from manual spray devices is often critical when using diamond saws. The application of water keeps blades and chains cool and lubricated, which keeps the diamonds from becoming polished and ineffective. This also keeps down dust.

- (1) Make a bevel (angle) cut along the painted lines.

Note: The bevel cut allows the rescue team to cut deep within the concrete while limiting the possibility that the cut section will "slip through the hole".

- (2) Prepare the slab for a lift-out procedure.

- (a) Set the anchor bolt. (See task 052-247-1227)

- (b) Attach the lifting lever to the anchor bolt.

- (c) Build the fulcrum as needed. (See task 052-247-1225)

- e. Perform a horizontal step-cut breach.

Note: This cut is used during a lift out operation when the slab is thicker than what can be cut with one pass of the saw.

- (1) Mark another area outside and parallel to the first cut the width of the saw blade guard.

- (2) Cut the concrete along the painted lines.

Note: When cutting, cut no more than one inch in depth at a time to avoid overheating of the blade.

- (3) Make relief cuts (strips) between the cuts.

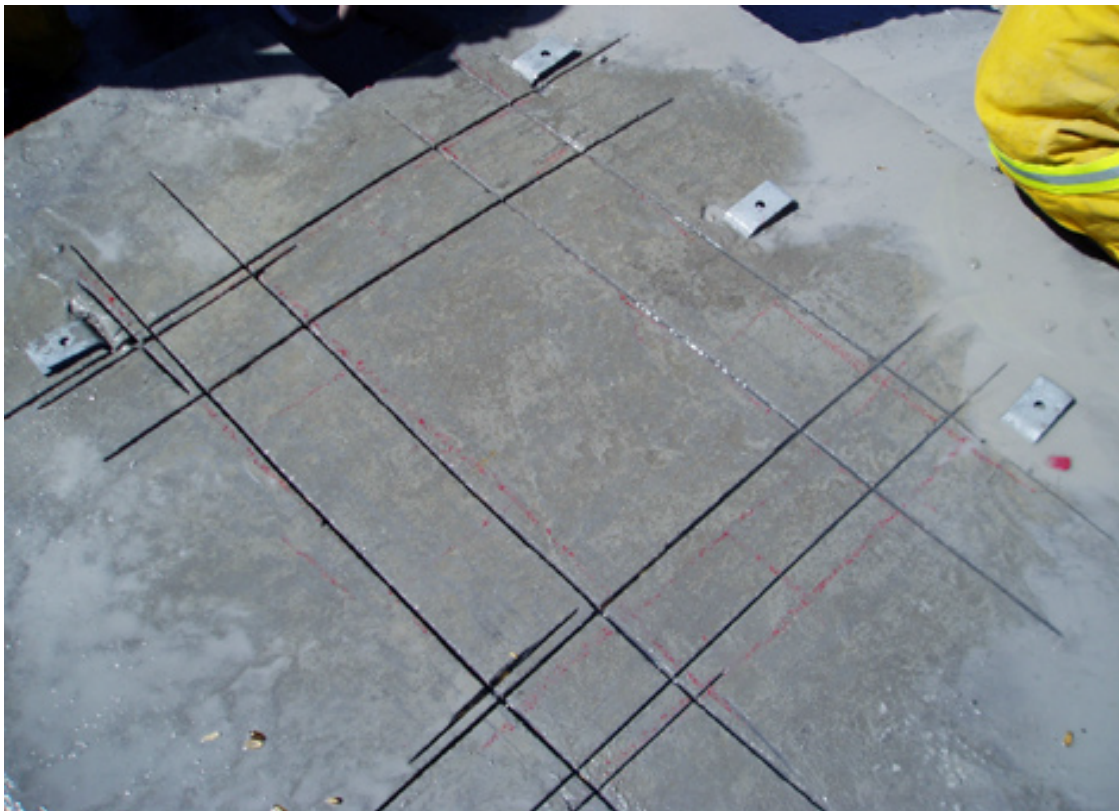


Figure 052-247-1324-5
Relief Cuts

(4) Chip out the concrete using jack hammer or pneumatic chipping hammer by chipping out area between cuts and creating a trench by penetrating 1/2 to 3/4 inch below the surface.



Figure 052-247-1324-6
Chipping

(5) Make step or bevel cuts on opposite sides of each other.

(6) Prepare the slab for a lift-out procedure.

(a) Set the anchor bolt. (See task 052-247-1227)

(b) Attach the lifting lever to the anchored bolt.

(c) Build the fulcrum as needed. (See task 052-247-1225)

f. Perform a lift-out of the slab.

(1) Loosen the cutout using a sledge hammer on one corner.

(2) Lift up the slab with the appropriate lever device and place wedges to ensure it does not fall through hole onto a victim.

(3) Continue to lift the slab and safely lift it away from any victim.



Figure 052-247-1324-7
Lift Out

4. Perform a breach of structural steel using torch cutting and burning techniques.

a. Provide for adequate fire protection in support of cutting/burning operations by staging an appropriate fire extinguisher.

b. Monitor the atmosphere before and during use.

c. Ventilate the space as needed prior to performing cutting operations.

d. Select cutting tips.

e. Perform metal cutting.

(1) Set the regulators to proper pressures for oxygen and/or fuel gas based on manufacturer's recommendations.

(2) Pre-heat the metal adequately prior to applying oxygen for burning (if using oxy-acetylene or Petrogen system).

f. Perform piercing cut with exothermic, oxy- acetylene and map torches.

Note: Cutting with a torch is often an art and requires experience to become an accomplished burner. Oxy-acetylene , and Oxy-gasoline requires the most knowledge while exothermic cutters can be used after only a few minutes of instruction and practice. Always wear proper burner's goggles. It only takes one piece of slag to end a career. In some instances cutting with a torch provides the most controllable method of cutting cables and rebar. When using any torch you must be aware of the fire hazard. You must also be aware of radiant heat transfer. Before and during operations you must monitor the atmosphere to assure you are not in, or creating a hazardous atmosphere.

g. Perform line cut with exothermic, oxy-acetylene and map torches.

h. Perform cutting operations with plasma cutters.

i. Severe and completely remove the object.

j. Turn torch off and bleed regulator.

5. Clear the opening to allow rescuer(s) to enter structure/void.

6. Enter the opening and perform a search for or retrieve the victim(s). (See task 052-247-1319)

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all measures are passed (P). Score the Soldier NO- GO if any measure is failed (F). If the Soldier fails any measure, show him how to do it correctly.

Evaluation Preparation: Provide the Soldier with all the items listed in the conditions.
Brief Soldier: Tell the Soldier to breach heavy structural components for a structural collapse.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Conducted a size-up.			
2. Executed a vertical breach.			
3. Executed a horizontal breach.			
4. Performed a breach of structural steel using torch cutting and burning techniques.			
5. Cleared the opening to allow rescuer(s) to enter structure/void.			
6. Entered the opening and performed a search for or retrieved the victim(s). (See task 052-247-1319)			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	Corps of Engineers	US Army Corps of Engineers, Urban Search and Rescue, Shoring Operations Guide, 3rd Edition	No	No
	NFPA 1006	Standard for Rescue Technician Professional Qualifications	Yes	Yes

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
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052-247-1313	Isolate Potentially Harmful Energy Sources Found in Erected Structures	052 - Engineer (Individual)	Analysis
052-247-1225	Construct Cribbing System(s) to Stabilize a Load	052 - Engineer (Individual)	Approved

Supported Individual Tasks : None

Supported Collective Tasks : None